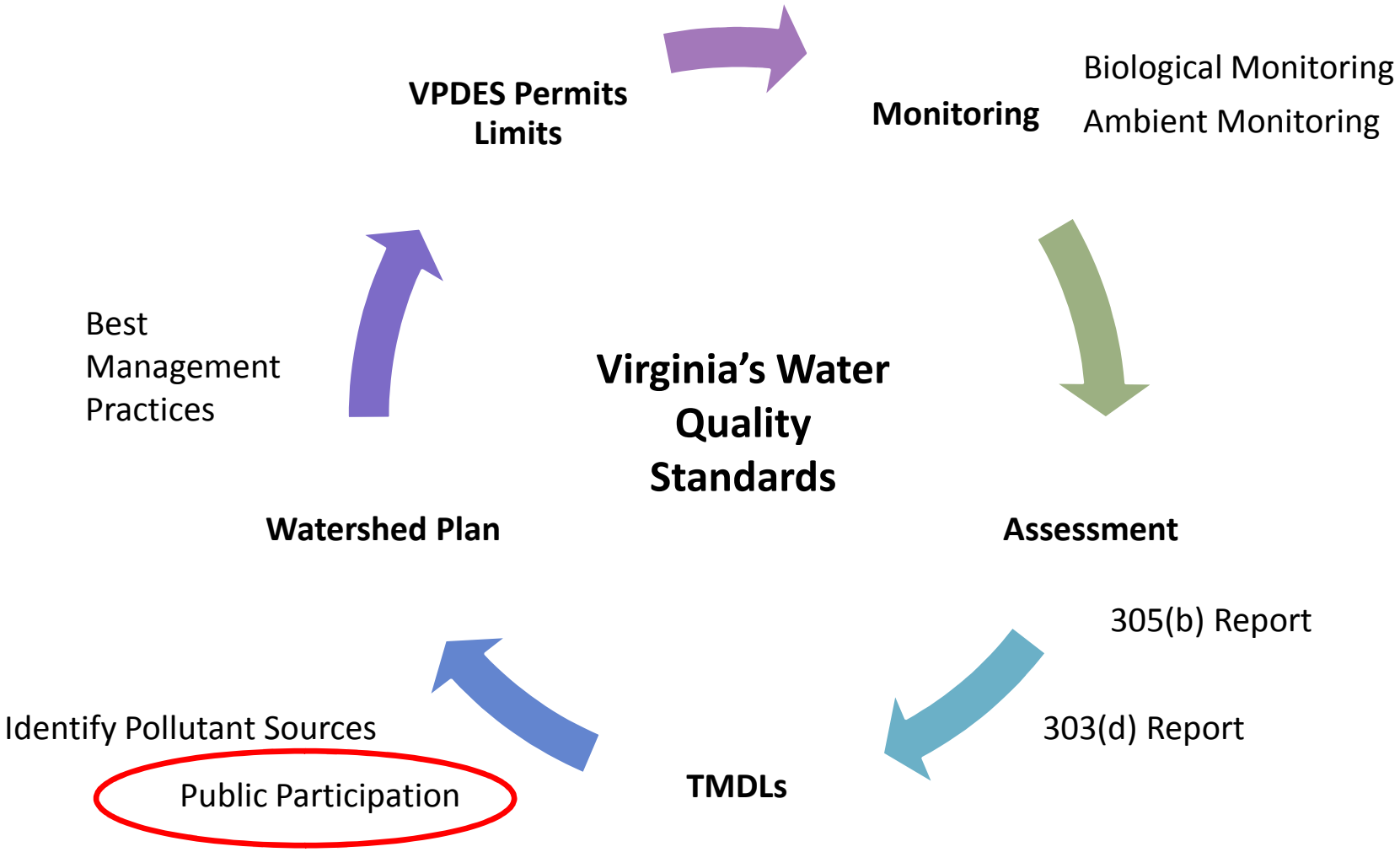
BEAVER CREEK TMDL MODIFICATION PUBLIC MEETING MARCH 1, 2016

Martha Chapman
DEQ-Southwest Regional Office

Meeting Agenda

- Virginia's Water Quality Standards overview
- TMDL process overview
- Beaver Creek Modification – MapTech
- Questions and discussion

Why Are We Here?



Water Quality Standards: Designated Uses

- Recreation
- Aquatic Life
- Wildlife
- Fish Consumption
- Shellfish
- Public Water Supply

The attainment of the recreational use is evaluated by testing for the presence of E. coli bacteria in freshwater systems.

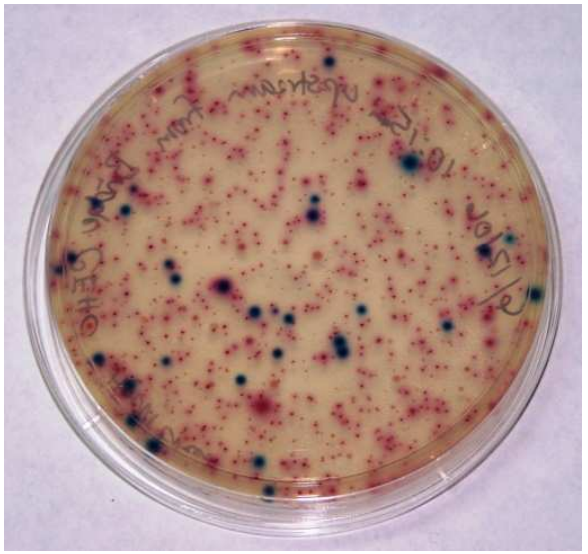
The aquatic life use is evaluated by testing for the health of the benthic macroinvertebrate community, as well as for parameters such as DO and pH.

Water Quality Standards: Recreation Use Water Quality Criteria

E. Coli bacteria in freshwater:

- Monthly geometric mean not exceeding 126 CFU/100mL

- If insufficient data to calculate geometric mean, no more than 10% of total samples >**235 CFU/100mL**



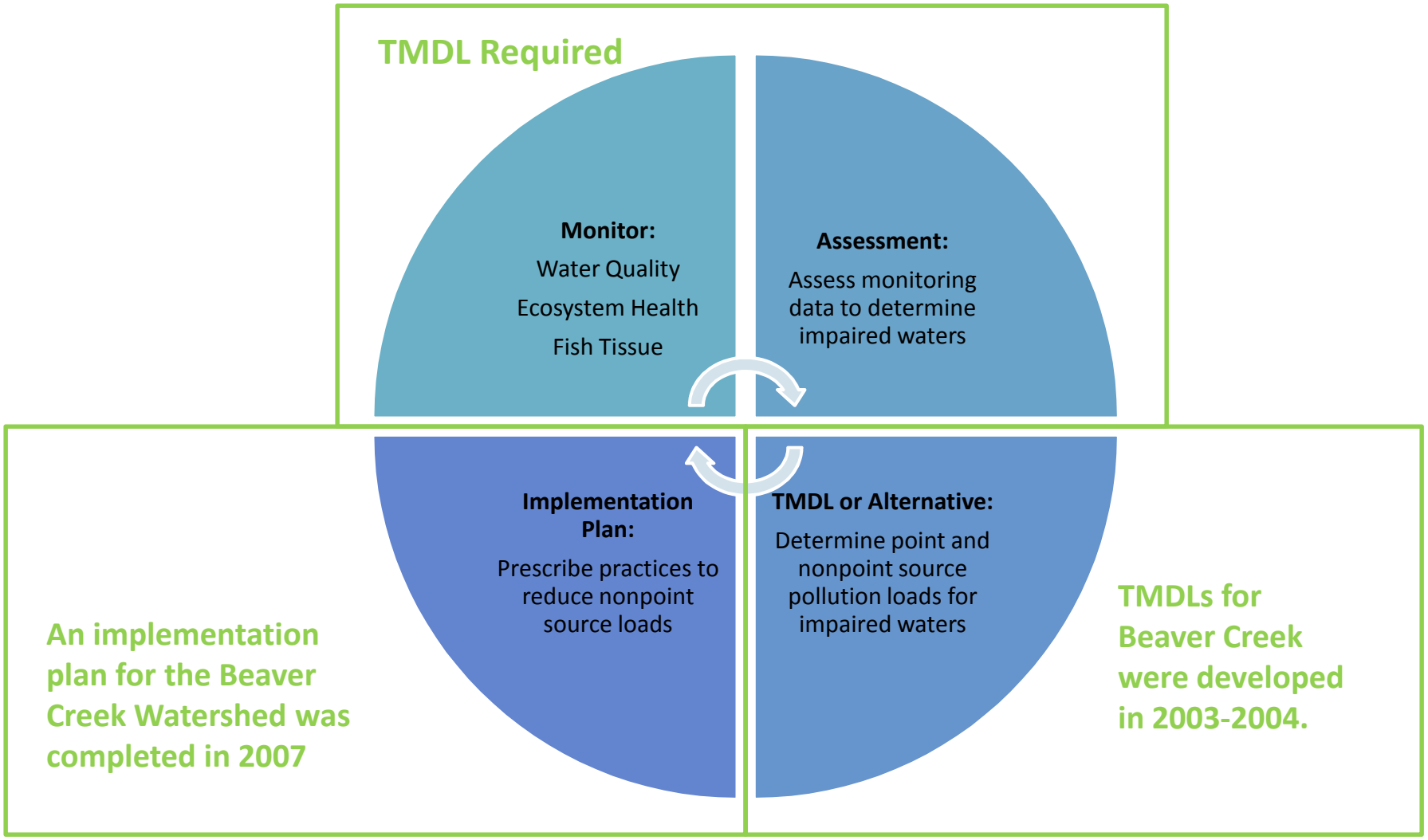
Water Quality Standards: Aquatic Life Use

From the Virginia Water Quality Standards:

9-VAC25-260-10. Designation of uses.

A. All state waters, including wetlands, are designated for the following uses: recreational uses, e.g., swimming and boating; the propagation and growth of a balanced, indigenous population of aquatic life, including some game fish, which might reasonably be expected to inhabit them; wildlife; and the production of the edible and marketable natural resources, e.g., fish and shellfish.

TMDL Development Process



What happens when a water body doesn't meet water quality standards?

- Waterbody is listed as "impaired" and placed on the 303(d) list
- Once a waterbody is listed as impaired, a Total Maximum Daily Load value must be developed for that impaired stream segment to address the designated use impairment
- TMDL studies are required by law:
  - 1972 Clean Water Act (CWA)
  - 1997 Water Quality Monitoring Information and Restoration Act (WQMIRA)

What is a TMDL ?
Total Maximum Daily Load

TMDL = Sum of WLA + Sum of LA + MOS

Where:

TMDL = Total Maximum Daily Load

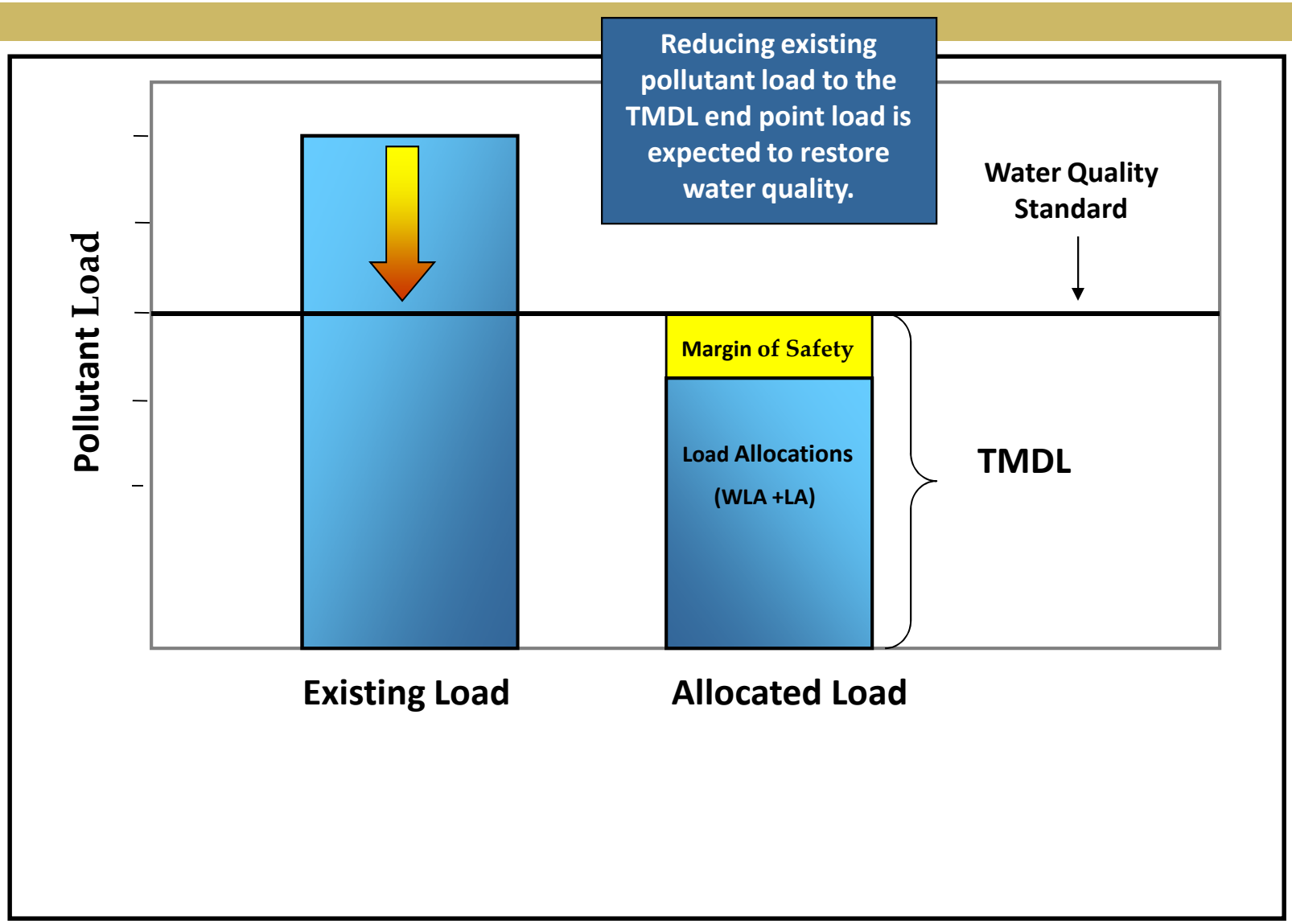
WLA = Waste Load Allocation (Point Sources)

LA = Load Allocation (Non-point Sources)

MOS = Margin of Safety (Implicit or Explicit)

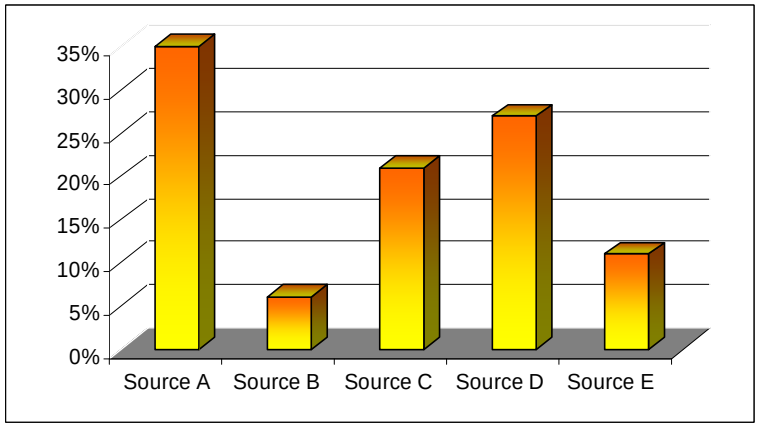
A TMDL is the total amount of a certain pollutant that a water body can receive and still not exceed water quality standards.

An Example TMDL



TMDL Development Methodology

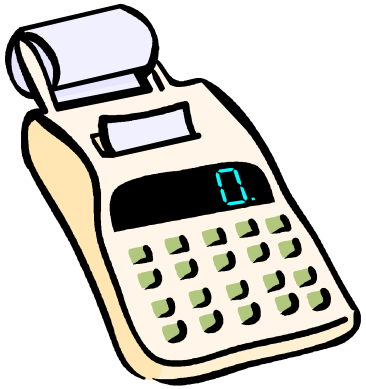
1. Analyze data for the watershed to determine what is causing the impairments.



2. Calculate the amount of pollutant entering the stream from each source type.

3. Enter available data into a computer model. Model simulates pollutant loadings into the watershed.

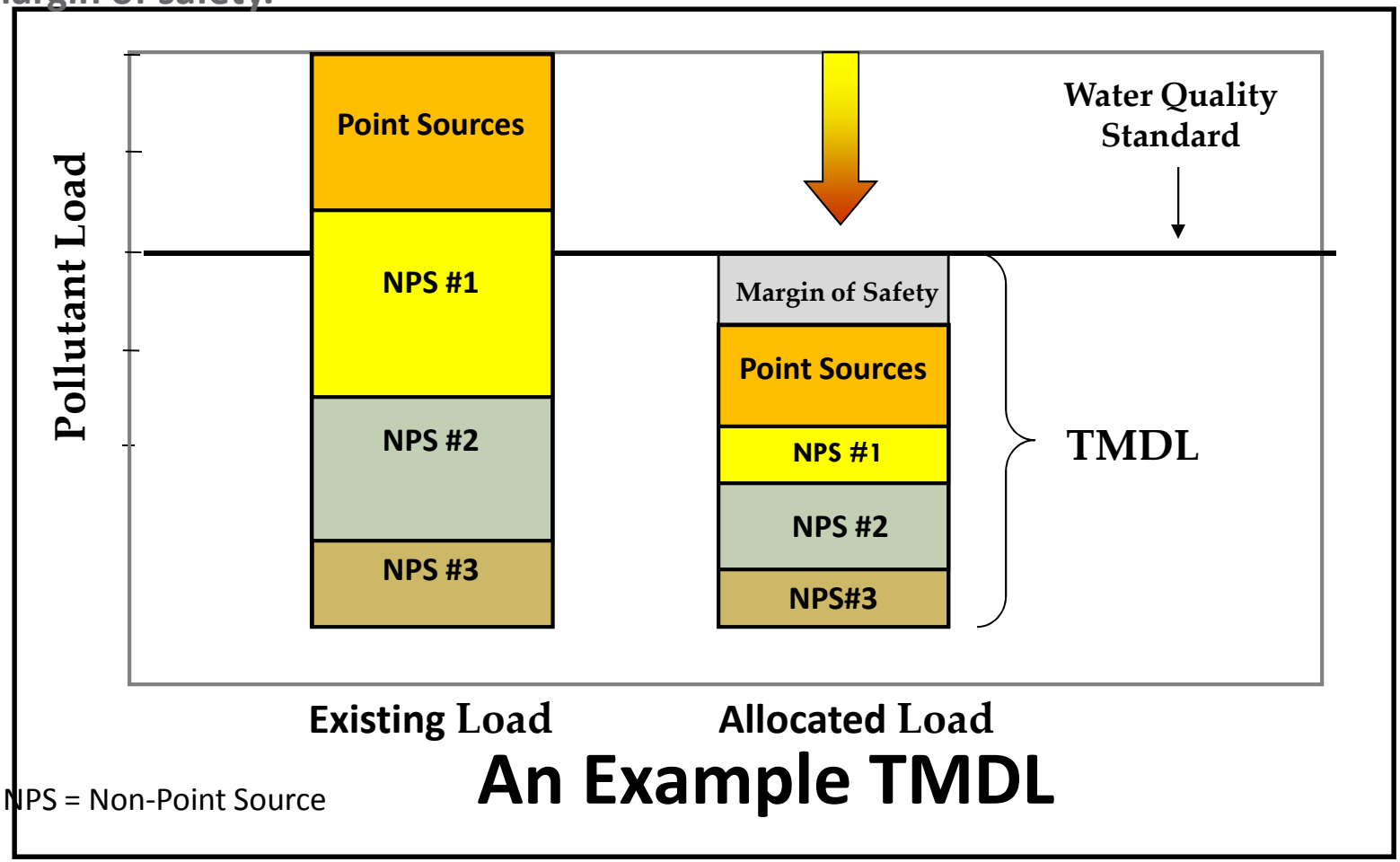
4. Use the model to calculate the pollutant reductions needed, by source, to attain Water Quality Standards.



5. Allocate the allowable loading to each source and include a margin of safety.

TMDL Development Methodology

Use the model to calculate the pollutant reductions needed, by source, to attain Water Quality Standards. Allocate the allowable loading to each source and include a margin of safety.



Required Elements of a TMDL

A TMDL must:

- Be developed to meet Water Quality Standards
- Be developed for critical stream conditions
- Consider seasonal variations
- Consider impacts of background contributions
- Include wasteload and load allocations (WLA, LA)
- Include a margin of safety (MOS)
- Be subject to public participation
- Provide reasonable assurance of implementation

Beaver Creek TMDL History

- Bacteria and benthic TMDLs were developed by DEQ in 2003-2004.
  - The TMDLs were approved by EPA on 7/06/2004 and by the SWCD on 12/02/2004.

- DCR developed a TMDL Implementation Plan for the watershed in 2006-2007.
  - The TMDL IP was approved by the SWCD on 7/31/2008.

DEQ's Role in this Revision Process

- WCSA submitted a permit application for the planned WWTP, DEQ recognized the permit could not be processed without modification of the existing TMDL and lacked the resources to complete the TMDL modeling.
- WCSA is providing funding for both the water quality analysis and TMDL modeling.
- Ensure that the TMDL revision meets EPA requirements and is approvable by the SWCB.
- Ensure that public participation guidelines are met.
  - Technical Advisory Committee Meeting
  - Public Meeting
  - Public Comment Period Ends on **April 1, 2016**

Next Steps – Permit Process

- DEQ will draft a permit consistent with the TMDL modification
- WCSA will publish a public notice in the Bristol Herald Courier once per week for two consecutive weeks
- 30 day comment period allowed for public comments

Questions and Discussion

Martha Chapman
TMDL Coordinator
DEQ SWRO

(276) 676-4845
martha.chapman@deq.virginia.gov